

7

a conductor pattern on the first surface extending in part to the vicinity of selected vias,

a plurality of copper film segments on said second surface shaped to provide indented solder ball contact pads which extend in part to the vicinity of selected vias, and

a conductive means for selectively interconnecting said conductor patterns with portions of said copper film segments respectively.

2. The flexible circuit as described in claim 1 wherein selected copper film segments extend into said vias and substantially through the thickness of said dielectric.

3. The flexible circuit as described in claim 1 further including a layer of copper partially or fully filling said indentations.

4. The flexible circuit as described in claim 1 which further includes a layer of nickel and of gold over the interconnect patterns and solder ball contact pads.

5. The flexible circuit as described in claim 3 which provides the interconnection circuitry for a substrate of an area array integrated circuit package.

6. The flexible circuit as described in claim 1 wherein said base dielectric film comprises a polyimide polymer in the range of 0.003 to 0.006 inches in thickness.

7. A double sided electrical interconnection flexible circuit substrate for an integrated circuit package to enable interconnecting an integrated circuit chip to an external circuit including:

a base dielectric film in the range of 0.003 to 0.006 inches thickness having a plurality of vias extending from the first major surface to the second major surface of said dielectric,

a conductor pattern on the first surface extending in part to the vicinity of selected vias,

a plurality of copper film segments on said second surface, selected ones of said segments extending into

8

selected vias, and substantially through the thickness of said dielectric, wherein said segments are shaped to provide solder ball contact pads with indentations on said second surface,

a conductive means for selectively interconnecting said conductor patterns with portions of said copper film segments respectively, and

a layer of nickel and of gold over the interconnect patterns and solder ball contact pads.

8. The double sided electrical interconnection flexible circuit substrate for an integrated circuit package as in claim 7 wherein said solder ball contact pad indentations are partially or fully filled with a layer of copper.

9. A double sided electrical interconnection flexible circuit substrate for an integrated circuit package to enable interconnecting an integrated circuit chip to an external circuit including:

a base dielectric film in the range of 0.003 to 0.006 inches thickness having a plurality of vias extending from the first major surface to the second major surface of said dielectric,

a conductor pattern on the first surface extending in part to the vicinity of selected vias,

a plurality of copper film segments on said second surface shaped to provide solder ball contact pads which extend in part to the vicinity of selected vias,

a conductive means for selectively interconnecting said conductor patterns with portions of said copper film segments respectively, and

a layer of nickel and of gold over the interconnect patterns and solder ball contact pads.

* * * * *